

WHAT IS CLAIMED IS:

1. A vocal sound input apparatus for an automotive vehicle, comprising:

5 a receiving microphone; and
 a noise collecting microphone, both of the receiving microphone and the noise collecting microphone being arranged onto a predetermined portion of a vehicle body in such a manner that a
10 direction of a sensitivity of the receiving microphone is opposite to that of the noise collecting microphone for the receiving microphone to enable to receive a vocal sound from a speaker and for the noise collecting microphone to enable to
15 collectively receive a noise of a surrounding of the speaker.

2. A vocal sound input apparatus for an automotive vehicle as claimed in claim 1, wherein both of the receiving microphone and the noise collecting microphone are integrally mounted to each other in such a manner that the direction of the sensitivity of the receiving microphone is opposite to that of the noise collecting microphone.

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3. A vocal sound input apparatus for an automotive vehicle as claimed in claim 2, wherein both of the receiving and noise collecting microphones are integrated together within a box-shaped frame of a
30 microphone assembly in such a manner that the direction of the sensitivity of the receiving microphone is oriented toward an inside of a vehicular passenger compartment and the direction of

the sensitivity of the noise collecting microphone is oriented toward a clearance between a vehicle body outer plate and the vehicular passenger compartment.

5 4. A vocal sound input apparatus for an automotive vehicle as claimed in claim 1, wherein the direction of the sensitivity of the receiving microphone is oriented toward an inside of a vehicular passenger compartment and the direction of the sensitivity of
10 the noise collecting microphone is oriented toward a clearance between a vehicle body outer plate and the vehicular passenger compartment.

5. A vocal sound input apparatus for an automotive vehicle as claimed in claim 3, wherein the microphone assembly is disposed on a ceiling portion of the vehicular passenger compartment.

6. A vocal sound input apparatus for an automotive vehicle as claimed in claim 5, wherein the microphone assembly comprises: a first plate having a first circular center hole into which the receiving microphone is fitted, a second plate juxtaposed to the first plate and having a center hole into which the noise collecting microphone is fitted; a third plate having a third circular center hole with its center point through which a first line denoting the direction of the sensitivity of the receiving microphone is penetrated; and a fourth plate having a fourth circular center hole with its center point through which a second line denoting the direction of the sensitivity of the noise collecting microphone is penetrated, both of the first line and the second

line being on the same line but the directions thereof being mutually 180° opposite to each other.

7. A vocal sound input apparatus for an automotive vehicle as claimed in claim 6, wherein the microphone assembly further includes engagement portions on respective side surfaces of the microphone assembly to engage with an interior trim material of a roof portion of the vehicular passenger compartment.

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8. A vocal sound input apparatus for an automotive vehicle as claimed in claim 7, wherein the microphone assembly further comprises a bracket having an attachment hole to a peripheral wall of which the engagement portions of the microphone assembly is engaged and the bracket is fixed to the interior trim material of the roof portion by means of fixing means, the first line being oriented toward the vehicular passenger compartment and the second line being oriented toward the roof portion of a vehicular outer plate.

9. A vocal sound input apparatus for an automotive vehicle as claimed in claim 7, wherein the microphone assembly further comprises a room mirror base having an attachment hole to which the engagement portion of the receiving microphone is engaged and an opening is formed at a portion of the room mirror base which faces toward the receiving microphone.

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10. A vocal sound input apparatus for an automotive vehicle as claimed in claim 1, wherein the noise collecting microphone is connected to an adder via an

inverter and the receiving microphone is connected to the adder and an output of the adder is connected to a voice recognition system mounted in the vehicle.

5 11. A vocal sound input apparatus for an automotive vehicle as claimed in claim 1, wherein the microphone is connected to an adder via an inverter and the other microphone is connected to the adder and an output of the adder is connected to a
10 telephone hand-free apparatus mounted in the vehicle.

12. A vocal sound input apparatus for an automotive vehicle as claimed in claim 10, wherein a vehicle speed sensor is connected to a switch to connect the
15 noise collecting microphone to the inverter when a vehicle speed detected by the vehicle speed sensor is equal to or higher than a predetermined vehicle speed.

13. A vocal sound input apparatus for an automotive vehicle, comprising: a receiving microphone to input a vocal sound from a speaker; and a noise collecting microphone to collectively input a surrounding noise of a speaker, both of the receiving microphone and the noise collecting microphone are mounted
25 integrally to each other in such a manner that a sensitivity direction of the receiving microphone is reversed to that of the noise collecting microphone.

14. A vocal sound input apparatus for an automotive vehicle, comprising:
30 a receiving microphone to input a vocal sound from a speaker; and

a noise collecting microphone to collectively
input a noise of a surrounding of the speaker, both
of the receiving microphone and the noise collecting
microphone being attached onto an interior trim
5 material defining a vehicular passenger compartment
in such a manner that a direction of a sensitivity of
the receiving microphone is oriented toward an inside
of the vehicular passenger compartment and the noise
collecting microphone is oriented toward a clearance
10 between a vehicular body outer plate and the interior
trim material.

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